

SMALL INTESTINE BACTERIAL OVERGROWTH

What is SIBO?

Small intestine bacterial overgrowth (SIBO) is a condition where abnormally large numbers of bacteria grow in the small intestine. In addition, the types of bacteria may change and resemble those found normally in the large intestine (eg *Gram negative bacteria and anaerobes*).

The small intestine is about 3m long, connects the stomach with the large intestine (colon) and is composed of 3 parts: duodenum; jejunum and ileum. Its main purpose is to digest and absorb food. Under normal circumstances, the small intestine contains a relatively low number of bacteria (less than 10,000 bacteria per ml) whereas the large intestine contains much larger numbers of bacteria (more than 1,000,000,000 bacteria per ml). Overgrowth of bacteria in the small intestine may occur in a number of diseases, such as Crohn's disease, diabetes, scleroderma, diverticulosis or following surgery. In addition, some doctors believe that some people with irritable bowel syndrome (IBS) also suffer with SIBO.

Is there a relationship between IBS and SIBO?

Many of the symptoms of IBS may also occur in patients with SIBO. Support for a relationship between IBS and SIBO comes from the observation that some people with IBS have abnormal hydrogen breath test results and that some people with IBS respond to treatment with antibiotics or probiotics, the primary treatments for SIBO. It is important to note that there is no high quality, clinical evidence to support the link between the two conditions and many doctors do not believe that IBS and SIBO are related.

What symptoms may be caused by SIBO?

The most common symptoms are:

- Abdominal fullness or bloating
- Abdominal pain or cramps
- Diarrhoea (usually watery)

Other symptoms may include:

- Fatty stool (more smelly and more difficult to flush away)
- Nausea
- Weight loss

What tests may be used to diagnose SIBO?

- Blood tests to look for malabsorption eg anaemia, low albumin, low calcium, raised alkaline phosphatase, low vitamin B12, raised folate, prolonged clotting and low vitamin D
- Endoscopy to take samples from small intestine
- Lactulose hydrogen breath test
- Imaging of small intestine (using magnetic resonance or radiology)

How is SIBO treated?

Wherever possible, it is best to treat the underlying cause of the excess small intestinal bacteria growth. In people with IBS and SIBO the two most common treatments are probiotics and antibiotics. Probiotics are live bacteria that, when ingested by an individual, may result in a health benefit. The most common probiotic bacteria are *lactobacilli* (also used in the production of yogurt) and *bifidobacteria*. Both of these bacteria are found in the intestine of normal individuals. There are numerous theories for how probiotic bacteria might benefit people eg inhibiting other bacteria in the small intestine that may be causing symptoms. It is important to be aware however that there is a lack of high quality evidence to confirm that probiotics work or are of clinical benefit. Several antibiotics either alone or in combination have been reported to be successful eg tetracycline, metronidazole, co-amoxiclav, norfloxacin or most recently, rifaximin. Treatment with antibiotics may be given for 7-10 days initially and success may be assessed either by an improvement in symptoms or by normalization of the lactulose hydrogen breath test result. If one antibiotic fails, another antibiotic may be tried. However, the doses of antibiotics and the duration of treatment are unclear due to a lack of well-controlled clinical trials. Moreover, antibiotics do have certain disadvantages including side effects and the emergence of bacteria that are resistant to the antibiotics.

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